

**What Is Claimed Is:**

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5 1. A bit rate transducer in an optical transmission system, comprising:  
a demultiplexer for demultiplexing optical signals into different wavelength  
channels;

a plurality of bit rate receivers coupled to the output of said demultiplexing means  
for converting said demultiplexed optical signals into the corresponding electrical signals  
and for generating a bit-rate error signal, said bit rate receiver having a sensing means for  
generating a temperature reference signal;

10 a detecting section coupled to the output of said demultiplexer for generating a  
signal indicative of the bit rate of the optical signals outputted therefrom; and,

a controller for comparing the bit rate detected by said detecting section with a  
predetermined data to generate a control signal that is used to adjust the bit rate of said bit  
rate receiver.

15 2. The bit rate transducer of claim 1, further comprising a switch for  
outputting said converted electric signals from the respective said bit rate receiver to a  
(remote location.

20 3. The bit rate transducer of claim 1, further comprises a parallel-to-serial  
converter for converting said bit-rate error signal generated from the plurality of said bit  
rate receivers into serial signals, and a serial-to-parallel converter for supplying the serial

signals outputted from said parallel-to-serial converter to said controller as parallel signals.

4. The bit rate transducer of claim 1, further comprises a first analog-to-digital converter for supplying the signal indicative of temperature of said bit rate receiver  
5 to said controller as digital signals.

5. The bit rate transducer of claim 1, further comprises a second analog-to-digital converter for supplying the signal indicative of bit rate detected by said detection  
section to said controller as digital signals.

6. The bit rate transducer of claim 1, wherein said predetermined data  
comprises a list of reference temperature with the corresponding reference bit rates.

7. The bit rate transducer of claim 1, wherein said controller compares the bit  
rate detected by said detecting section in response to said bit-rate error signal and said  
temperature reference signal.

8. The bit rate transducer of claim 1, wherein said controller generates said  
control signal based on said temperature reference signal and said bit-rate error signal  
received thereon with said predetermined data.

9. The bit rate transducer of claim 1, further comprising a means for generating said bit-rate error signal, wherein said bit-rate error signal is generated based on a difference between the detected bit rate by said bit rate receiver and a pre-set bit rate.

5 10. A bit rate transducer in an optical transmission system, comprising:  
a plurality of bit rate receivers for converting incoming electrical signals into the corresponding optical signals and for generating a bit-rate error signal, said bit rate receiver having a sensing means for generating a temperature reference signal;

10 a multiplexer for multiplexing said converted optical signals outputted from the plurality of said bit rate receivers;

a detecting section coupled to the output of said multiplexer for generating a signal indicative of the bit rate of the electrical signals outputted therefrom; and,

15 a controller for comparing the bit rate detected by said detecting section with a predetermined data to generate a control signal that is used to adjust the bit rate of said bit rate receiver.

11. The bit rate transducer of claim 10, further comprising a switch for providing said incoming electrical signals to the plurality of said bit rate receivers.

20 12. The bit rate transducer of claim 10, further comprises a parallel-to-serial converter for converting said bit-rate error signal generated from the plurality of said bit rate receivers into serial signals, and a serial-to-parallel converter for supplying the serial

signals outputted from said parallel-to-serial converter to said controller as parallel signals.

13. The bit rate transducer of claim 10, further comprises a first analog-to-digital converter for supplying the signal indicative of temperature of said bit rate receiver  
5 to said controller as digital signals.

14. The bit rate transducer of claim 10, further comprises a second analog-to-digital converter for supplying the signal indicative of bit rate detected by said detection  
10 section to said controller as digital signals.

15. The bit rate transducer of claim 10, wherein said predetermined data  
15 comprises a list of reference temperature with the corresponding reference bit rates.

16. The bit rate transducer of claim 10, wherein said controller compares the  
20 bit rate detected by said detecting section in response to said bit-rate error signal and said temperature reference signal.

17. The bit rate transducer of claim 10, wherein said controller generates said  
control signal based on said temperature reference signal and said bit-rate error signal  
received thereon with said predetermined data.